Demo Tester

USER MANUAL

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1. Demo Kit Check List

- ✔ DEMO Tester Plane
- ✔ DUT (device under test) Plug with alligator clamps
- ✔ Remote Control Cable
- ✔ Igniter NOT INCLUDED

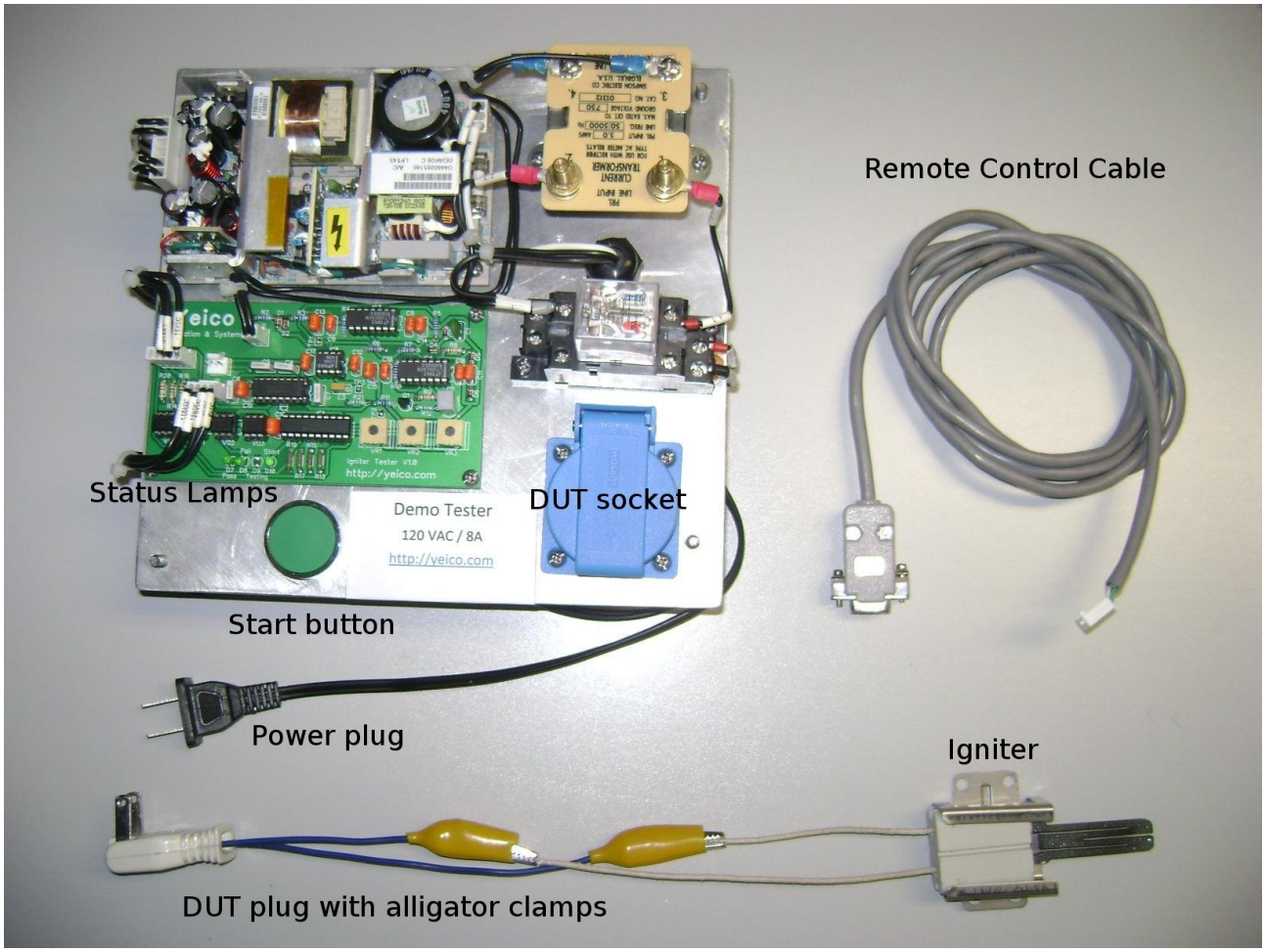


Fig. 1: Check List

2. Basic Quick Start

1) Connect your Igniter Sample to the DUT Plug.
   - DESTRUCTIVE : Remove igniter connector and clamp alligators on the bare wires (as shown in picture).
   - NON-DESTRUCTIVE : Get a matching harness for igniter. Clamp alligators to harness bare wires end. Connect igniter to harness connector end. *Harness with matching connector not provided because of the large variety of igniter connectors*.
2) Connect the Power Plug to an appropiated Regulated 120VAC/12A Power Line Socket.
3) Push the Start Button and after a few seconds check the result in the On-Board Status Lamps. **CAUTION : Depending on test time igniter can turn VERY HOT. Place the igniter on a stable and non-flamable surface.**

3. Advanced Quick Start

This is a complementary procedure which assumes the Basic Quick Start has been successfully completed.

1) Get a Windows XP/Vista PC with one available serial port.
2) Connect the Remote Control Cable to on-board J2 3-pin Molex Connector.
3) Connect the Remote Control Cable to your PC serial port connector.
4) Download the Remote Control Application from http://files.yeico.com/RemoteControl.zip. Uncompress it and launch the executable. This requires .Net Runtime 2.0 or above. It is very likely your PC has this already installed. If not, get it from Microsoft site thru this link.
5) Select you Serial Port name from the drop list and click the Open button.
6) Click the Start Button and after a few seconds check the result in the On-Screen Status Lamps.

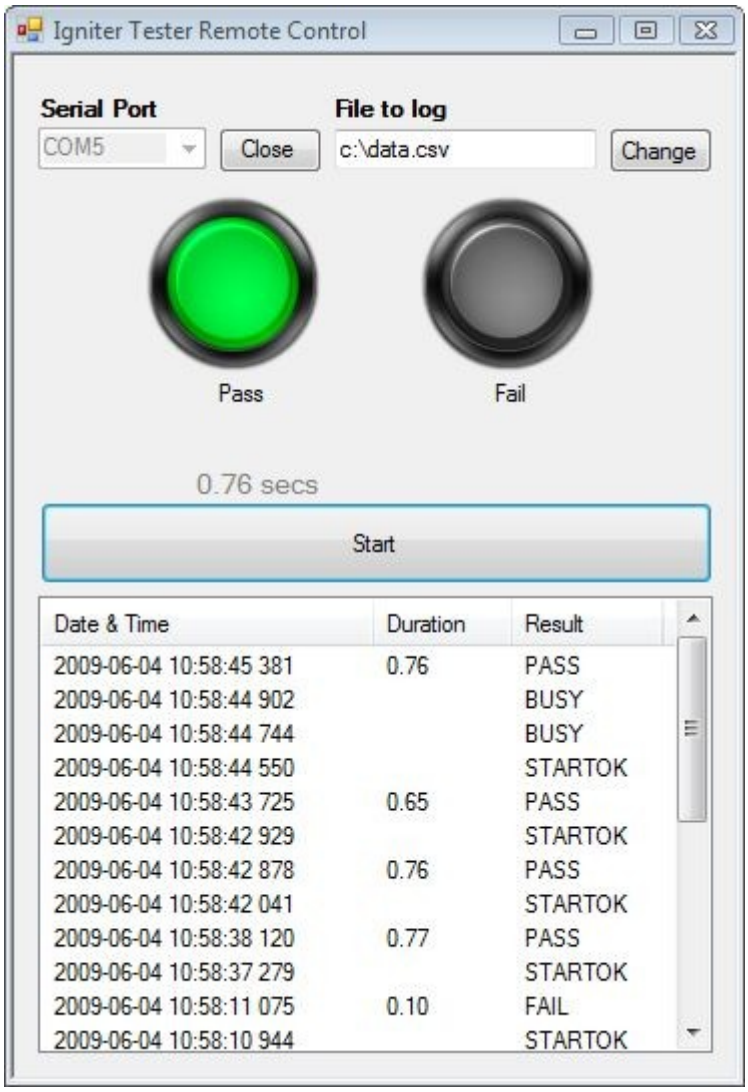


Fig. 2: Remote Control Sample Application

3. Principles of Operation

When igniters are subject to sock or vibration cracks may appear. Cracks generate the following phenomena :

1) **Non conducting**. This happens when igniter is completely broken. This is easily detected because even when not visually accesible it renders the appliances unusable.
2) **Conduction with sparks and flat zones**. This happens when the ceramic bar presents a transversal cut but remains in electric contact because of the Spring Back Effect. This case generates both electric and visual effects. The electric efect is called **flat zones**. The igniter keeps working as normal but eventually the electric contact in the crack zone degrades and igniter fails. This is a very critial issue in appliance manifaturing because normal appliance operation is not immediately disrupted making it hard to detect.
3) **Conduction with hot spots and intermitent or no flat zones**. This happens when cracks do not fully cut the bar transversal area or when the ceramic bar presents bits or when the spring back is very strong. This case only generates visual effects. It requires more elaborated (and expensive) means of detection like thermography.

Our tester works for 1 and 2 and for some sub-cases of 3.

A **flat zone** is and electric phenomena which appears when an alternating voltage is applied to a material which requires a minimum voltage to conduct. When voltage is below minimum current is zero. When voltage is above minimum current flows by Ohms law.

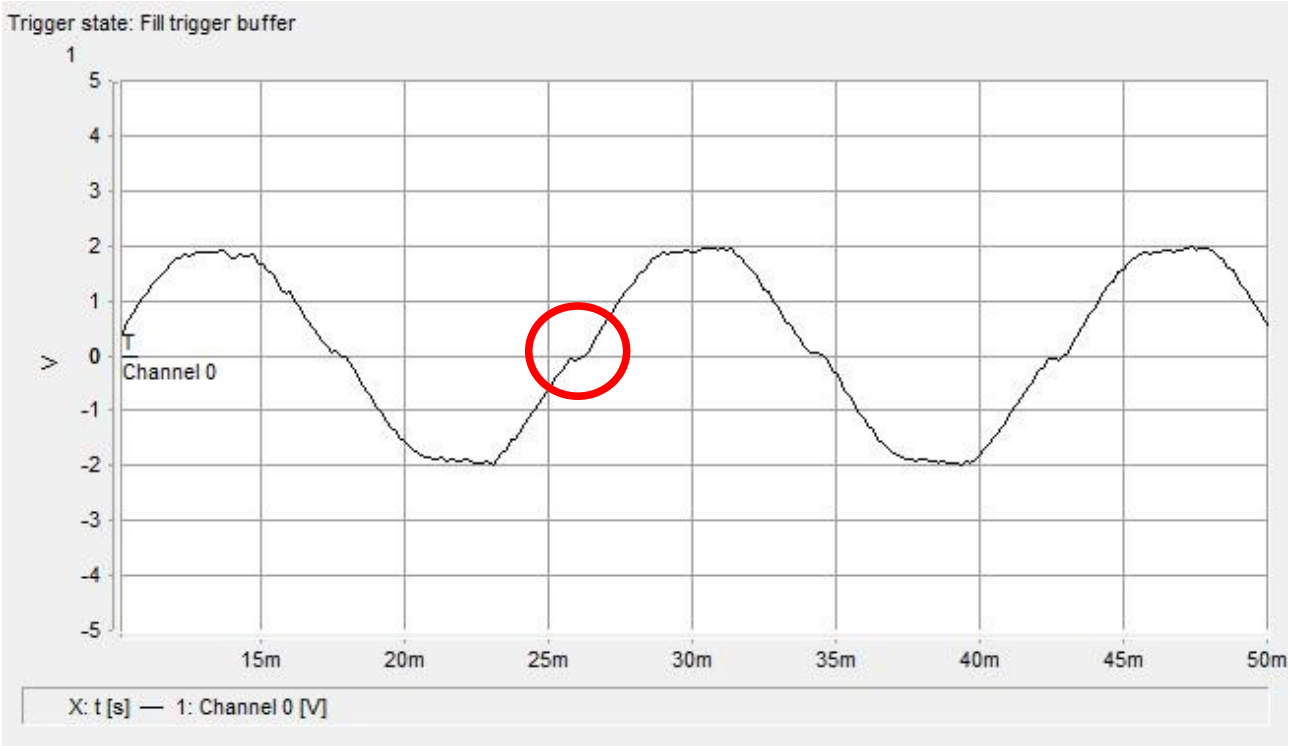
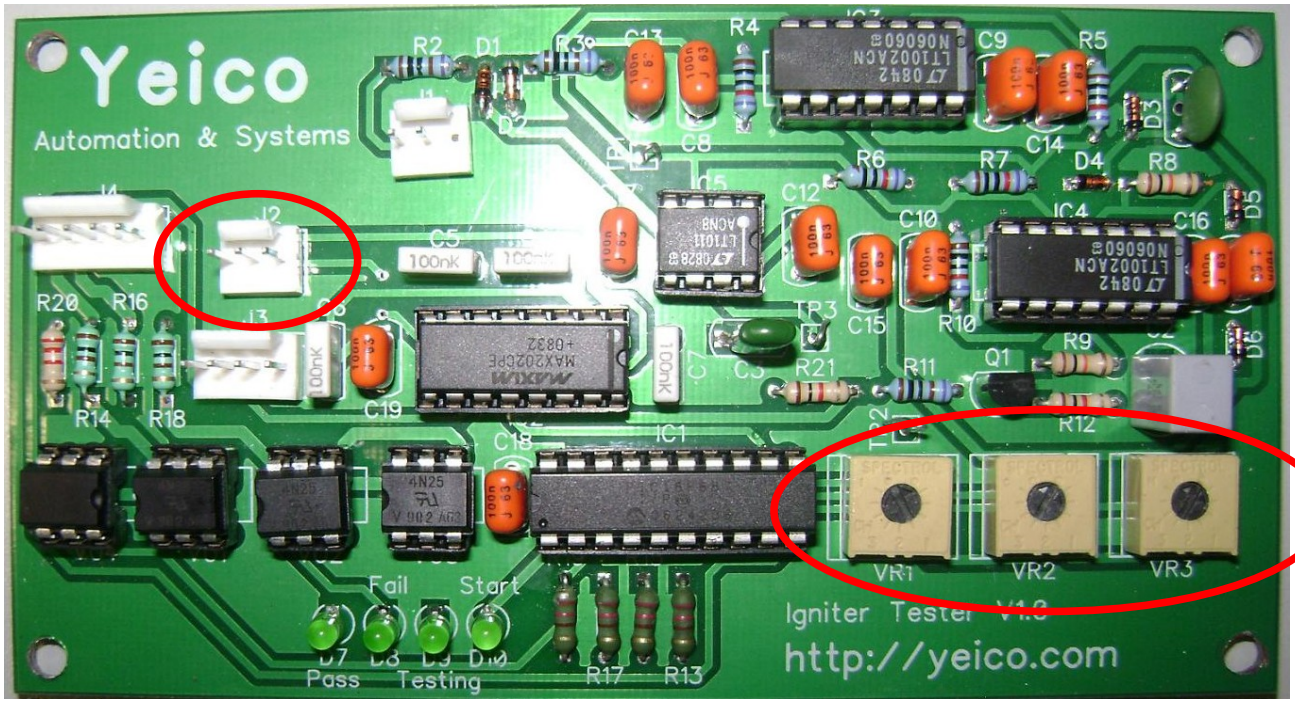


Fig. 3: Current Wave with Zero Cross Flat Zones

Our tester is a flat zone detector.

4. Test Timing



Test timing can be configured as follows :

1) Pot VR1 configures stabilization time from 100 milliseconds to 3 seconds. Stabilization time is an initial period to be ignored.
2) Pot VR2 is not currently used.
3) Pot VR3 configures test time from 1 to 20 seconds. Test time is the maximum time the tester waits for a flat zone. It a flat zone is detected test is stopped immediately.

5. Final Remarks

Our Tester is VERY flexible and affordable. It can be used as an standalone tester or integrated into a PLC/PC/PAC controlled panel. It has traceability capabilities thru its serial remote control and monitor protocol.

Several testers can be parallelized for faster or lot testing. The possibilities are many. Let us know you testing and production needs. We have the knowledge and experience to turn your requirements into a working solution.